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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,357	12/20/2001	Kwang-Wook Kim	101190-00022	3447

7590 12/20/2004

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EXAMINER	
CULBERT, ROBERTS P	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 12/20/2004

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/022,357
Filing Date: December 20, 2001
Appellant(s): KIM ET AL.

Robert K. Carpenter
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/6/04.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences that will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Claim 2 is the only claim pending in the present application.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

GB 1480807 A	BEER	7-1977

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 2 is rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 4/6/04.

(11) Response to Argument

Appellant has argued *"the subject matter of pending claim 2 requires sintering at two different temperatures, namely both sintering at 450°C to 550°C and at 600°C to 700°C. As Beer, at best, only very broadly mentions a single oxide formation and adherence step at 400°C-650°C, present claim 2 would not have been obvious over Beer for this reason alone."*

The argument is not persuasive since Beer teaches (See Table 2 and Example 6 of Beer) both a first step of sintering step at 400°C to 650°C (Page 3, Lines 89-108) and a second step of sintering at a temperature of 400°C to 650°C. (Page 3, Line 125 – Page 4, Line 2) The temperature ranges used in both of the sintering steps of Beer overlap considerably with the corresponding sintering steps of the present invention. There is no indication in Beer that the two sintering steps need to be performed at the

same temperature within the specified ranges. Beer only indicates that the two sintering steps should be performed within the temperature range of 400°C to 650°C. In fact, Example 6 indicates that the first sintering step may be performed at 475°C to 580°C (Page 3, Lines 106-108) as in example 5, and the second step more broadly at 400°C to 650°C. Therefore, Beer suggests that two different temperatures may be used. However it is noted that this suggestion is not necessary for a proper rejection since Beer teaches two distinct sintering steps that overlap with the temperature ranges of the present invention.

Appellant has argued, *"electrode production prior art, including Beer, suggest a sintering temperature of 400-550°C or 400-650°C (Beer) to oxidize a coating solution, but in the course of practically producing the electrode, the sintering temperature does not exceed 550°C. The reason for this is..."*

The argument is not persuasive because appellant has provided no evidence other than argument to support an assertion that is entirely contradictory with both the invention of Beer, which teaches sintering at temperatures as high as 650°C, and the description of prior art processes provided in Beer which also are performed at temperatures as high as 650°C. See Tables 1 and 2 of Beer.

Appellant has argued, *"Beer does not mention any electric conductive oxide layer formed at 450-550°C, that is, the TiO_2 (base metal oxide)-screening layer"*

The argument is not persuasive, since Beer does teach a layer made from titanium oxide and sintered at 475-580°C. See (Page 3, Lines 89-108) of Beer. Applicant has not provided any explanation why this layer is not the same as the layer of the claimed present invention since it is formed from the same material and at the same temperature.

Applicant has argued, *"If the coating solution is additionally applied on the previous layer while this stage is omitted, since the previous layer is not completely dried and set, ...a laminate having distinct layers cannot be formed. Furthermore, if the coating solution is heated to 400-600°C using a furnace*

immediately after it is applied on the coated layer... the coating solution insufficiently adheres to the previous layer ..."

The arguments presented above are incorrect, as they do not relate to the method of Beer. Beer does not teach omission of any claimed process steps or heating a coated solution immediately after application. Beer teaches a three-step process as in the method of the present invention.

Appellant has argued, *"In other words, in the case of employing no TiO_2-screening layer, when the solution coated on the surface of the base metal is oxidized by heat, the base metal is heated and oxidized. The base metal oxide is easily diffused..."*

The argument above likewise is in error since Beer does teach the claimed TiO_2 layer. Appellant has provided no explanation as to why the TiO_2 layer of Beer does not serve as a valve metal oxide for preventing the activity of the anode from being lowered as claimed in the present invention.

Appellant has argued that *"prior art, including Beer, disclose that the sintering of the oxide is conducted at 400-650°C, but do not mention that the performances of the electrode are unexpectedly improved when the sintering is conducted at 600°C or higher (refer to FIGS. 3 and 4).*

However, the results of Figures 3 and 4 are not commensurate with the claimed temperature range. Figure 3, for example, illustrates a maximum decomposition rate at 600 and 650°C, but provides too few data points for an accurate analysis. Gradual changes appear to occur throughout the range and appear to decrease after 650°C. It appears as if the optimum range for the Ru-oxide electrode occurs between 550 and 600°C not between 600 and 700°C as claimed to be unexpected by appellant. For the Ir-oxide electrode, it appears that the range of 550-600°C contains optimum values that overlap with the values in the 650-700°C temperature range. There is no clear indication from the data results that unexpected results occur in the claimed 600-700°C range. Furthermore, the data indicate that sintering above the temperature range of Beer, i.e. above 650°C, produces less than optimum results. There is no indication of the time of sintering in the data provided by appellant, or evidence that the sintering time produces new or unexpected results.

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *See MPEP 2144.05.*

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Roberts Culbert

December 16, 2004

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